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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,487	07/09/2001	Ho Kyoum Kim	2598/OJ593	5179
7278	7590	01/11/2006	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			HUFFMAN, JULIAN D	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/901,487

Applicant(s)

KIM ET AL.

Examiner

Julian D. Huffman

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-15 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 6-15 and 22-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 15 September 2004.

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide antecedent basis for the language "the PCB having an opening at a predetermined portion therethrough".

The disclosure is objected to because of the following informalities:

Page 11, line 2, the reference numeral number is omitted.

Appropriate correction is required.

### ***Claim Objections***

3. Claims 1, 2, 4, 5 and 21 are objected to because of the following informalities:

Claim 1, line 2, includes the language "the PCB having an opening at a predetermined portion therethrough".

The word "through" is defined as "from one end to the other".

Applicant's fig. 4 does not depict such an opening.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama (JP 01-095553) in view of and Masaaki et al. (JP 3-11757).

Kitayama discloses:

With regards to claim 1, an image sensor module (fig. F), comprising:

a PCB (1, package is a PCB since it contains electrical wiring film 6) for transferring and transmitting electric signals and having a circuit (wiring film 6 transfers and transmits electrical signals to lead 7), the PCB having an opening at a predetermined portion therethrough (fig. F, PCB has an opening in which image chip 4 is received);

an image chip (sensing device 4) seated in the opening (chip 4 is seated in opening in PCB 1);

a transparent medium (8) having a printed circuit of a predetermined pattern on a first surface thereof (electrodes 5 connect image chip to medium plate and then to package 1);

a first bump (10a) and a second bump (10b) formed on the first surface of the transparent medium, the first bump being electrically connected to a chip pattern (5) on the image chip seated on the PCB, the second bump being electrically connected to the circuit of the PCB (second bump 10b is connected to package/PCB through wiring film 6) and situated between the PCB and the printed circuit of the transparent medium (shown in fig. F); and

adhesive molded to the predetermined portion of a rear surface of the PCB, on which the image chip is mounted (adhesive 3 used to secure image chip to package/PCB).

With regards to claim 4, the anisotropic conductive films 10 which form the bumps have high conductivity since they are conductive.

With regards to claim 5, this limitation is directed towards the method of manufacturing the sensor and is not seen to patentably limit the structure of the apparatus claims.

Kitayama discloses fixing the solid-state image sensing device/image chip to the PCB/package using adhesive 3.

Kitayama does not disclose an epoxy resin molded to the PCB on which the image chip is mounted.

Masaaki et al. disclose fixing a sold image sensing device (3) to a package (1) through an epoxy resin (2, abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to fix the solid-state imaging device to the PCB using epoxy resin, as taught by Masaaki et al. into Kitayama, for the purpose of providing a semiconductor device with improved humidity resistance and reliability (abstract, Masaaki et al.)

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama in view of Masaaki et al. as applied to claims 1, 4 and 5 above, and further in view of Takashi (JP 01-248542).

Kitayama as modified is not seen to expressly disclose a glass substrate.

Takashi discloses a glass (4) for transmission of light to a photosensor chip (1, abstract).

It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute the glass of Takashi in place of the transparent member of Kitayama as modified by Masaaki for the purpose of providing a light transmission member which prevents output from being saturated due to incidence of strong light (abstract, Takashi).

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama in view of Masaaki as applied to claims 1,4 and 5 above, and further in view of Wetzel (U.S. 6,268,231).

Kitayama as modified does not disclose a flexible PCB.

Wetzel teaches a CCD package that uses a flexible PCB (fig. 1a, element 18).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the PCB/package of Kitayama to be flexible, as taught by Wetzel into Kitayama, for the purpose of providing a PCB/package with facilitated assembly and alignment (column 4, lines 40-43) and smaller size (column 4, lines 43-45).

### ***Response to Arguments***

8. Applicant's arguments filed 25 October 2005 have been fully considered but they are not persuasive.

Applicant argues that Kitayama does not disclose a PCB having an opening at a predetermined portion therethrough, and an image chip seated in the opening and secured with an epoxy resin, the arrangement resulting in an overall more miniaturized or compact arrangement.

For purposes of examination, this language is interpreted in light of fig. 4 and Kitayama discloses the claimed opening as described above and shown in fig. F.

Further, a comparison of Kitayama's fig. F and applicant's fig. 4 reveals that the openings in the PCB's which receive the image chips are nearly identical.

Further, the combination of Kitayama and Masaaki discloses the epoxy resin.

Additionally, applicant's argument that the claimed device provides a more compact arrangement is not persuasive since the structures are similar and the claimed invention is taught by the prior art.

Applicant's argument that Kitayama and Masaaki disclose a recess or groove, which differs from applicant's claimed "opening" is not well taken since a recess or groove is equivalent to an opening.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Regarding the epoxy resin, applicant has respectfully failed to consider the combination of Kitayama and Masaaki.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.




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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Julian D. Huffman  
5 January 2006

  
Stephen D. Meier  
Primary Examiner